Amendments to the Claims

The following listing of the claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A purified nucleic acid construct comprising:

a gene cassette encoding at least one modified ~~bioluminescent~~ protein selected from the group consisting of: a modified LuxA and a modified LuxB, said modified protein comprising at least one modification in its amino acid sequence relative to the sequence of ~~an unmodified~~ a wild-type form of said protein, wherein said modification comprises the addition of a peptide sequence to the protein,

and wherein the half-life of the modified protein when expressed in a cell is shorter than the half-life of the wild-type form of the protein when expressed in the cell ~~said addition reducing a first duration of bioluminescence emitted by said modified bioluminescent protein relative to a second duration of bioluminescence emitted by said unmodified form of said protein~~.

Claim 2 (currently amended): The purified nucleic acid construct of claim 1, wherein said gene cassette encodes ~~a luciferase protein~~ both modified LuxA and modified LuxB, wherein the modified LuxA comprises at least one modification in its amino acid sequence relative to the sequence of a wild-type LuxA, and wherein the modified LuxB comprises at least one modification in its amino acid sequence relative to the sequence of a wild-type LuxB.

Claim 3 (previously presented): The purified nucleic acid construct of claim 1, wherein said gene cassette encodes all proteins necessary for production of bioluminescence without addition of an exogenous substrate.

Claim 4 (currently amended): The purified nucleic acid construct of claim 3, wherein the gene cassette ~~said nucleic acid construct comprises~~ encodes ~~a lux CDABE cassette~~ LuxC, LuxD, and LuxE.

Claim 5 (canceled).

Claim 6 (currently amended): The purified nucleic acid construct of claim 1 [5], wherein the modified protein is derived ~~said Lux protein comprises the amino acid sequence of a Lux protein isolated~~ from a bacteria selected from the group consisting of: *Photorhabdus luminescens*, *Vibrio fischeri* and *Vibrio harveyi*.

Claim 7 (currently amended): The purified nucleic acid construct of claim 1, wherein the ~~modified form of said bioluminescent protein comprises a~~ peptide sequence ~~that~~ specifically binds to a protein associated with a proteolytic pathway.

Claim 8 (previously presented): The purified nucleic acid construct of claim 7, wherein said protein associated with a proteolytic pathway is a tail-specific protease.

Claim 9 (currently amended): The purified nucleic acid construct of claim 8, wherein the peptide sequence ~~of the modified bioluminescent protein~~ comprises SEQ ID NO:8.

Claim 10 (currently amended): The purified nucleic acid construct of claim 8, wherein the peptide sequence ~~of the modified bioluminescent protein~~ comprises SEQ ID NO:9.

Claim 11 (currently amended): The purified nucleic acid construct of claim 8, wherein the peptide sequence ~~of the modified bioluminescent protein~~ comprises SEQ ID NO:10.

Claim 12 (canceled).

Claim 13 (canceled).

Claim 14 (canceled).

Claim 15 (currently amended): The purified nucleic acid construct of claim 7, wherein said protein associated with a proteolytic pathway mediates degradation of said modified ~~bioluminescent~~ protein via a ubiquitin-proteasome pathway.

Claim 16 (previously presented): The purified nucleic acid construct of claim 15, wherein said protein associated with a ubiquitin-proteasome pathway is SCF(GRR1).

Claim 17 (currently amended): The purified nucleic acid construct of claim 15, wherein the peptide sequence of said modified ~~bioluminescent~~ protein comprises a PEST-rich sequence.

Claim 18 (currently amended): The purified nucleic acid construct of claim 17, wherein said PEST-rich sequence comprises a PEST-rich carboxy ~~terminus~~ terminal sequence of G1 cyclin Cln2 ~~(*Cln2*).~~

Claim 19 (currently amended): A vector comprising [[a]] the purified nucleic acid construct of claim 1 ~~comprising a gene cassette encoding at least one modified bioluminescent protein, said modified protein comprising at least one modification in its amino acid sequence relative to the sequence of an unmodified form of said protein, said addition reducing a first duration of bioluminescence emitted by said modified bioluminescent protein relative to a second duration of bioluminescence emitted by said unmodified form of said protein~~.

Claim 20 (previously presented): The vector of claim 19, wherein said vector is a plasmid.

Claim 21 (currently amended): The vector of claim 19, wherein said vector is an expression vector suitable for ~~driving~~ expressing a nucleic acid incorporated in the vector ~~expression~~ in a cell type selected from the group consisting of: a bacterial cell, a yeast cell and a mammalian cell.

Claim 22 (previously presented): A prokaryotic cell comprising the vector of claim 19.

Claim 23 (previously presented): The prokaryotic cell of claim 22, wherein said cell is a bacterial cell.

Claim 24 (currently amended): The prokaryotic cell of claim 22, wherein said vector in said bacterial cell comprises the purified nucleic acid of claim 7 ~~or 8~~.

Claim 25 (previously presented): A eukaryotic cell comprising the vector of claim 19.

Claim 26 (previously presented): The eukaryotic cell of claim 25, wheren said cell is a yeast cell or a mammalian cell.

Claim 27 (previously presented): The eukaryotic cell of claim 25, wherein said vector in said cell comprises the purified nucleic acid of claim 15.

Claim 28 (canceled).

Claim 29 (canceled).